**Inquiring about Data: Worksheet**

**Assume that these data are from your college and that you’ve assembled as a project team to review them and discuss possible implications for your work in re-thinking your precollege math program. Use the following questions to frame and structure your discussion.**

* 1. **What inferences, hypotheses might we draw from these data? What might be some of the factors contributing to what we see in the data?**
* **Year to year more or less stable, slightly more variability in level 3**
* **In level 4, average close to highest, suggesting cluster toward high end—are the same people teaching?**
* **Generally, 2010 slightly lower than 2009**
* **Better overall success in levels 1 & 2 compared to 3 & 4 (perhaps because lower levels more concrete, more support/study skills provided?)**
* **Some of the range might be due to higher drop rates in some sections, perhaps advisors customize enrollments**
* **Is it always the same instructor with the outlier pass rates?**
* **Maybe there are placement issues**
* **How is “passing” defined?**
* **Differences in curriculum, classroom practices?**
* **Economic conditions, levels of external stress**
* **Culture:** 
  + **historical context—high pass rate, low standards—students probably won’t be successful in future classes**
  + **told as new instructors “expect 50% pass rate”**
  + **data over 6-year period showed no difference in success in next level classes between high and low pass rates**
  1. **What other evidence (quantitative, qualitative) would we want to gather to help us understand and use these data?**
* **Contextual data (e.g., time of day; frequency of meetings; avg. age of students in class; entering skill levels; previous math class/es, full-time/part-time, withdraw rates)**
* **Who is succeeding/who is failing? Look at demographics of high/low courses**
* **Rates from all the sections**
* **What percentage of those who pass take the next course the next term or within the year?**
* **Pass rates by instructor; rates based on or controlling for student attendance**
* **Rather than just pass rates, what do students really understand at end of course? Need core questions to assess student understanding across sections**
* **Could we use a more structured CAT to assess understanding of specific concepts/ideas for students across different sections & classes? What are our expectations in terms of these concepts/ideas?**
* **Compare grades, scores on final to Compass scores**
  1. **Assuming we’ve identified some possible areas or issues that we want to explore further or address collectively as a department, how might we use the “common practices” defined in the project (*classroom assessments, classroom exchanges, faculty inquiry*) to understand and improve these results?**
* **Faculty collaborate on norms around finals, grading scales, etc.**
* **FIG: share mastery test pass data, help begin raising questions, parse how other faculty think about their classes, help examine the data on a personal level, do reality check with colleagues—“I think this is happening, what do you think?”**
* **Follow up with potential explanations; are there common conceptual difficulties? What CATs, other activities might be helpful in understanding those difficulties? (Collect, then discuss)**
* **What if you followed groups through different classes—sort of a focus group?**
* **Use common CAT focused on core concepts/ideas as foundation for discussions about student understandings rather than just pass rates**
* **Every class has a “dropping off point”—what’s going on with that? Unrealistic expectations about student understandings? Could it be … (e.g., homework)?**
* **How do we make sense of students’ responses?**
  1. **Reflect as a team on the benefits and challenges of having this discussion around data like these with a broader group of department colleagues rather than just our team— what would we need to reproduce this discussion back at our college?**
* **Challenges: potentially polarizing conversation, finger-pointing instead of focusing on the variations in success rates (if it was voluntary, it would be helpful); could be polarizing if low pass-rate teachers do exchanges with high pass-rate teachers**
* **Small increases in average success rates can have big impact ad lead math department to set and communicate goals**
* **Need a clear ‘sales pitch” that allows faculty in the math department to come to their own conclusions about the potential issues in these data (might be a demand for other data, which would be good)**
* **Specific instructors who are successful could share strategies**
* **We need to see where there might be problems; need to know what we’re doing that’s different from others if we really want to improve**
* **Consider common final exam—in what areas of the course are students weakest?**
* **What are students’ experiences of learning?**
* **Tap into students’ perceptions of why they are (or aren’t) being successful; find ways to dig deeper into the data**